

Serial No. 10/518,105  
Filed: December 10, 2004

### **REMARKS/ARGUMENTS**

Reconsideration of the above application in view of the above amendment and the below remarks is requested. Claims 1 and 2 have been amended to further define the invention. No new matter has been added. Support for the amendment is present in the specification on page 9, 2<sup>nd</sup> paragraph and page 12, top of page.

In the Office Action, the Patent Office rejected claims 1 and 2 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takano et al (JP 2002-006514).

The applicants have amended claim 1 and 2 to relate to a composition for preventing development-defects which has an equivalent excess of base as compared to acid.

In the new Declaration submitted by the applicants, the applicants have clearly demonstrated in Table 1 that using tetramethyl ammonium as the base, when the acid is in excess of the base the photoresist pattern has a T-top (Example 1), whereas when the base is in excess, particularly in the range 1:1.04 to 1:3, the photoresist pattern shows the desired rectangular or almost rectangular profile for ratios of 1:1.04, 1:2, 1:2.5 and 1:3 with the film thickness loss of 230 Å, 510 Å, 329 Å and 344 Å respectively. The applicants have shown data for the ends of the claimed range and at intermediate values. On the other hand, as a comparison, when a different base such as monoethanolamine is used and when an excess base is used up to 1:3 (acid:base), the film loss cannot exceed about 100nm and the photoresist profile still has the undesirable T-top, as illustrated in Tables and Graphs 2 and 3. Not all bases when used in excess give the claimed properties of the present specification. Thus, only the specific tetraalkyl ammonium base of the present invention when used with an equivalent excess of base as compared to

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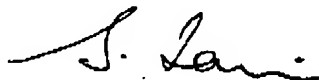
acid, unexpectedly gives both the desired profile and the desired film loss for a positive photoresist. The Declaration also shows that just adjusting the base/acid level, when the base is ethanolamine, is not sufficient to obtain the claimed properties.

Takano teaches that positive chemically amplified photoresists require only an acidic composition, and further that negative chemically amplified photoresists require a weakly acidic to alkaline composition [0018]. The present invention relates to a positive photoresist. Therefore there is no teaching in Takano that would lead one of ordinary skill in the art to make a positive photoresist with excess of base relative to acid and also expect to obtain a reduction in film thickness of 100-600Å. The Declaration shows that just using any base to adjust the acid:base ratio is not sufficient to cause the required reduction in film thickness. Increasing the ethanolamine:acid ratio does not increase the film thickness sufficiently and give a pattern without T-tops. It is the unexpected combination of a specific surfactant in a specific ratio that leads to the loss of film thickness in the range of 100-600Å for a positive photoresist without the undesirable T-tops in the pattern. Thus the Examiner is requested to remove Takano as a prior art reference.

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In view of the above amendments and remarks, the present application is believed to be in condition for allowance, and reconsideration of it is requested. If the Examiner disagrees, he is requested to contact the attorney for Applicants at the telephone number provided below.

Respectfully submitted,



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